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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,666	12/28/2007	Kekun Huang	4870-001	4193
23429 7590 04/15/2009 LOWE HAUPTMAN HAM & BERNER, LLP 1700 DIAGONAL ROAD SUITE 300 ALEXANDRIA, VA 22314				
EXAMINER STALDER, MELISSA A				
ART UNIT		PAPER NUMBER		
1793				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/585,666

Applicant(s)

HUANG, KEKUN

Examiner

MELISSA STALDER

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-893)
Paper No(s)/Mail Date 07-07-06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17, 19, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tucker (US 6,638,369) in view of Akui (US 7,077,895). Tucker teaches a non-chromate conversion coating where the coating comprises titanate in an aqueous solution with nitric acid where the pH is between 1.2 and 2.2. Tucker teaches the use of potassium titanate (a metal oxysalt). Akui teaches a titanium oxide coating where the ratio of inorganic acid to titanium in the aqueous solution is 1:400 (col. 9, lines 30-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Tucker with the ratio of Akui because the inorganic phosphoric acid taught in Akui at this ratio improves the corrosion resistance of the film.

Claims 17, 18, 19, 21, 23, 24, 25, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue (US 5,743,971) in view of Akui (US 7,077,895). Inoue teaches a liquid rust proof composition made of titanium metal cation (salt), nitric acid, and a silicate which can be a sodium silicate or potassium silicate. Akui teaches a titanium oxide coating where the ratio of inorganic acid to titanium in the aqueous

solution is 1:400 (col. 9, lines 30-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Inoue with the ratio of Akui because the inorganic phosphoric acid taught in Akui at this ratio improves the corrosion resistance of the film. Further, it would require one of ordinary skill in the art mere optimization to use the oxysalt and silicate in a ratio of 35-45:1.

Regarding claim 19, Inoue teaches the use of a titanium metal cation and oxymetal anion.

Regarding claim 21, Inoue teaches the use of sulfuric acid, hydrochloric acid, and nitric acid (col. 3, lines 11-19).

Regarding claim 23, Inoue teaches a pH of 1.5 to 3.0.

Regarding claim 31, Akui teaches the ratio of 1:400 which would encompass the masses of the metal and the acid in the claim. Inoue teaches the use of a complexing agent (chelating agent).

Regarding claim 32, Inoue teaches the use of the metal salt and silicate in the composition. It would require merely optimization known to one of ordinary skill in the art at the time of the invention to obtain the ratio of the chelating agent to the oxysalt.

Claims 17, 18, 19, 21, 23, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett (US 6,524,403) in view of Akui (US 7,077,895). Bartlett teaches a non-chrome containing composition that contains titanates and nitric acid in an aqueous composition (col. 2, lines 36-44). Titanate can be used to supply the titanium ions and the titanate can come in a complexed form (oxysalt). The composition

can also contain a complexing agent and has a pH between 1 and 3.5. Akui teaches a titanium oxide coating where the ratio of inorganic acid to titanium in the aqueous solution is 1:400 (col. 9, lines 30-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Bartlett with the ratio of Akui because the inorganic phosphoric acid taught in Akui at this ratio improves the corrosion resistance of the film.

Regarding claims 27 and 28, the complexing agent can be an organic acid (col. 2, line 59- col. 3, line 5). The organic acid can be citric acid or tartaric acid.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett (US 6,524,403) in view of Akui (US 7,077,895) as in claims 17-17, 21, 23, 27, and 28 above, further in view of Nikaido (US 3,962,061). Nikaido teaches the use of potassium permanganate and ammonium molybdate as oxysalts in a coating solution. These salts can be used as an admixture (col. 3, line 43-col. 4, line 49). It would have been obvious to one of ordinary skill in the art at the time of the invention to use these compounds in the solution of Bartlett and Akui because the salt makes the composition more stable. Further, it would require merely optimization known to one of ordinary skill in the art at the time of the invention to obtain the ratio of the two oxysalts.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue (US 5,743,971) in view of Akui (US 7,077,895) as in claims 17, 18, 19, 21, 23, 24, 25, 31 and 32 above, further in view of Nikaido (US 3,962,061). Inoue teaches the use of

ammonium molybdate. Nikaido teaches the use of potassium permanganate and ammonium molybdate as oxysalts in a coating solution. These salts can be used as an admixture (col. 3, line 43-col. 4, line 49). It would have been obvious to one of ordinary skill in the art at the time of the invention to use these compounds in the solution of Inoue and Akui because the salt makes the composition more stable. Further, it would require merely optimization known to one of ordinary skill in the art at the time of the invention to obtain the ratio of the two oxysalts.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett (US 6,524,403) in view of Akui (US 7,077,895) as in claims 17 and 21 above, further in view of Ostrander (US 2,796,371). Ostrander teaches the use of nitric acid, sulfuric acid or hydrochloric acid. It would have been obvious to one of ordinary skill in the art to use a combination of these acids in the solution of Bartlett and Akui because Bartlett teaches the use of an inorganic acid and Ostrander teaches the use of these acids to adjust pH in a coating. Further, it would require merely optimization known to one of ordinary skill in the art at the time of the invention to obtain the ratio of the two acids.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett (US 6,524,403) in view of Akui (US 7,077,895) as applied to claims 17, 18, 19, 21, 23, 27 and 28, above, and further in view of Matsushima (US 4,927,472). Matsushima teaches the use of pyrophosphoric acid, tartaric acid, and citric acid as chelating agents in a conversion coating solution for metal surfaces. It would have been obvious to one

of ordinary skill in the art at the time of the invention and would require only optimization to combine the acids taught in Matsushima and use them in the ratio of 6:5:1. Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the acids of Matsushima with the solution of Bartlett and Akui as Matsushima teaches the use of these acids as chelating agents and Bartlett teaches the use of tartaric acid and citric acid as complexing agents (same as complexing agents).

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett (US 6,524,403) in view of Akui (US 7,077,895) in view of Matsushima (US 4,927,472) as in claims 17, 18, 19, 21, 23, 27, 28, 29 above, further in view of Tono (US 5,171,474). Tono teaches the use of sodium peroxide and nitrilotriacetic acid (NTA) in an aqueous coating reagent (col. 1, lines 4-6; col. 2, lines 58-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the sodium peroxide and nitrilotriacetic acid of Tono because Tono teaches that these compounds can be used as oxidizing agents in the solution with the chelating agents. Further, it would only require optimization by one of ordinary skill in the art at the time of the invention to use the compounds in the claimed ratio.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELISSA STALDER whose telephone number is

(571)270-5832. The examiner can normally be reached on Monday-Friday, 8:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MS
04-01-09

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793